SOVIET

~~SECRET~~

AST-2660Z-029-86
20 JUNE 1986

GUIDED ARTILLERY MUNITIONS--STATUS OF SOVIET DEVELOPMENTS

25X1

NOT RELEASABLE TO FOREIGN NATIONALS

~~SECRET~~

WARNING NOTICE--INTELLIGENCE SOURCES OR METHODS INVOLVED

SECRET

GUIDED ARTILLERY MUNITIONS--STATUS OF SOVIET DEVELOPMENTS

25X1

Wesley H. Kilbrith, Jr.

AST-2660Z-029-86

DATE OF PUBLICATION
20 June 1986

Information Cutoff Date
13 May 1986

This document was prepared by the US Army Foreign Science and Technology Center as a special initiative report. It reports new foreign intelligence data of critical interest to intelligence users. It has not been formally validated for use in army scenarios, war games, or threat assessments that support force, combat, or materiel developments. It will not be used for these purposes without the express approval of the Assistant Chief of Staff for Intelligence, US Army (DAMI-FIT).

NOT RELEASABLE TO FOREIGN NATIONALS

WARNING NOTICE--INTELLIGENCE SOURCES OR METHODS INVOLVED

CLASSIFIED BY: MULTIPLE SOURCES
DECLASSIFY ON: OADR

SECRET

(This page is UNCLASSIFIED)

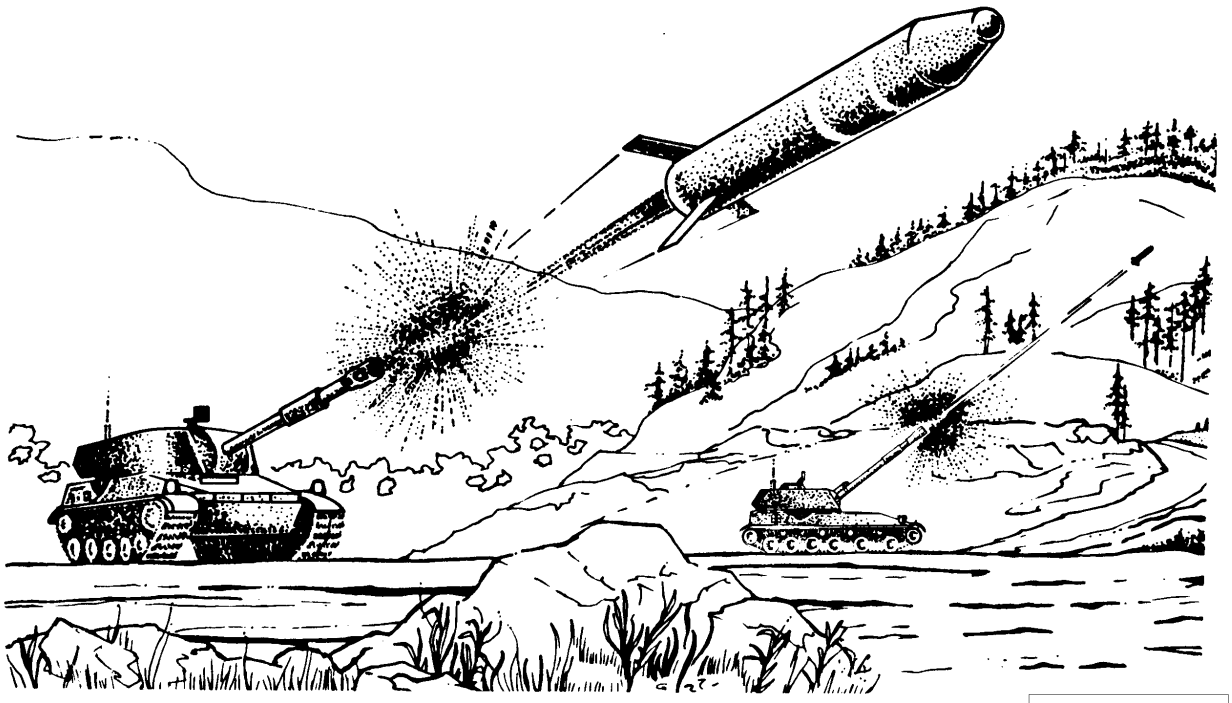


Figure 1. Artist's Impression of Cannon-Launched Guided Projectile

AST-2660Z-029-86
20 June 1986

25X1

GUIDED ARTILLERY MUNITIONS—STATUS OF SOVIET DEVELOPMENTS

SIGNIFICANT FINDINGS

- 25X1 The Soviets have fielded terminally guided 122-mm and 152-mm cannon artillery projectiles and have field tested 240-mm terminally guided mortar projectiles. They are also in the process of developing terminal homing munitions or submunitions for the 220-mm multiple rocket launchers (MRL) and short-range ballistic missiles (SRBM). The Soviets will target these munitions against high-priority targets such as nuclear delivery systems, deep-strike systems, and command and control centers. Use of terminally guided munitions will dramatically reduce the number of rounds required and achieve the desired effect through increased lethality.

- 25X1 The deployment of these systems provides additional capability to the already formidable Soviet artillery system and demonstrates Soviet willingness to go to increasing sophistication and complexity in order to accomplish the fire-support mission.

- 25X1 The Soviets are assessed to be developing precision guided munitions (PGM) for use in a tracked armored vehicle, and this vehicle should be available for deployment by 1987. PGM will increase the first-round hit probability for ammunition used to engage both direct- and indirect-fire targets.

- 25X1 While there is not enough data on the 220-mm MRL and SRBM terminal homing munitions to identify how they might best be countered, it is assessed that the 122-mm, 152-mm, and 240-mm laser-guided systems can be countered with a laser warning receiver and a repeater-jammer.

NOT RELEASABLE TO FOREIGN NATIONALS

WARNING NOTICE--INTELLIGENCE
SOURCES OR METHODS INVOLVED

GUIDED PROJECTILES [redacted] 25X1

[redacted] Cannon-launched laser-guided projectiles (CLGP) are available for the 122-mm 2S1 and the 152-mm self-propelled (SP) gun-howitzer 2S3 and towed weapons of the same caliber (the D-30 and D-20). Soviet acquisition of documents on the US Copperhead 155-mm laser-guided cannon-launched projectile allowed the Soviets to accelerate development of their own programs. Artillery data obtained during the mid-1980s indicated that the 2S3 fired guided rocket-assist projectiles. Although no firm information is available on maximum range, the maximum range of the assessed laser-guided rocket-assisted projectile is 25 km. 25X1

[redacted] The employment of CLGP by the 2S3 would be a component of reconnaissance fire complex operations against high-priority point targets such as the Army Tactical Missile System (fig 1). This is in keeping with the assessment that Soviet targeting for semiactive laser-guided (SAL) projectiles currently involves primarily point targets (such as top-attack delivery systems and associated equipment, counterfire radars, fire-direction centers, and command and control installations) and probably not highly mobile targets such as armored vehicles. For point targets, a high-blast warhead filled with aluminized RDX is predicted. 25X1

[redacted] A Soviet 122-mm CLGP employed against fighting positions for lightly armored vehicles and crew-served weapons makes artillery orders of magnitude more effective in the close-support role. For example, it takes 2350 122-mm high-explosive point-detonating (HE-PD) fuzed rounds to cause 50% to 60% fractional damage to a mechanized infantry platoon, with troops dismounted and fighting from prepared positions. Only 15 to 20 CLGP would be required to cause the same amount of damage to the target (fig 2). 25X1

[redacted] If one dismounted mechanized infantry platoon, equipped with M2 infantry fighting vehicles, were attacked by the 2S3, it would require 324 fragmentation-high-explosive (Frag-HE) rounds with point-detonating (PD) fuzes. If the same target were attacked with CLGP with the same damage criteria, only three to four CLGP would be required (fig 2). 25X1

NOT RELEASABLE TO FOREIGN NATIONALS

WARNING NOTICE--INTELLIGENCE
SOURCES OR METHODS INVOLVED

25X1

Figure 2. [redacted] Comparison of Expenditure Rates--Soviet Conventional Ammuniton vs. TGM

25X1
25X1

TERMINALLY GUIDED MORTAR MUNITIONS

Terminally guided 240-mm mortar projectiles are also available to the Soviets. The towed M-240 mortar is used in preparatory fire, and guided rounds are targeted against strong points and shelters. Recently, the 240-mm SP mortar 2S4 was sighted in Afghanistan, and undoubtedly the 2S4 will be able to fire this ammunition, which is probably laser-guided. Such a projectile would be well-suited for engaging targets during military operations on urbanized terrain (MOUT) at a maximum range of 9.7 km unassisted and 13.7 km with rocket assist. Although no evaluation has been made of a 240-mm mortar firing guided projectiles, an M-240 or 2S4 mortar would fire 96 conventional rounds at a target with a 500-meter front, but only an estimated 10 to 15 guided rounds would be needed for the same target (fig 2).

HOMING WARHEADS OR SUBMUNITIONS

By 1984, there were indications that the Soviets may have had homing munitions available for the 220-mm BM-27 MRL; however, it was unclear whether the munitions involved a homing warhead or a warhead containing homing submunitions. There are also indications that SCUD missiles are possibly equipped with improved conventional munition (ICM) warheads fitted with homing submunitions. The 152-mm TGM projectiles are certainly operationally deployed in East Germany, and 240-mm mortar TGM have been employed in the field. There are no indications at this time that any sensor/seeker submunitions delivered by rockets or missiles are operationally employed with Soviet ground forces or that top-attack submunitions have been developed. When deployed with homing munitions, the BM-27 probably will be found in a reconnaissance fire complex, and the SCUD or SS-23 will be employed in a reconnaissance strike complex. Both of these weapons will be targeted against US nuclear weapons, top-attack delivery systems, and command and control centers.

25X1
25X1

PGM RELATED TO TRACKED AMPHIBIOUS ARMORED VEHICLES

25X1

It is projected that the Soviets will soon field another tracked amphibious vehicle like the 120-mm SP combination gun. It is probable that this vehicle will fire newly developed Frag-HE and high-explosive antitank PGM complete rounds to provide both a direct-fire and indirect-fire capability in a close-support role.

25X1
25X1
25X1

COUNTERMEASURES

25X1

The Soviets clearly understand the advantages of employing TGM and can be expected to field them in increasingly large numbers. Based on the current assessments that the projectiles are SAL, countermeasures such as laser warning devices and/or

laser repeater jammers could be used to defeat this threat.

[redacted] The Soviets are assessed to have such a countermeasure capability. At least one T-80 tank variant currently in production almost certainly has a laser countermeasure to precision-guided weapons available. This false-target generator (FTG) slow repeater-jammer is estimated to be implemented in the form of a combination gunner's sight/laser-rangefinder-designator with a warning receiver.

25X1

[redacted] The most recent information indicates that the Soviets are currently manufacturing antitank guided missile countermeasures equipment designed to "create a false image out to the side of the T-80 tank" and attract various types of guided missiles. The US Copperhead CLGP was cited as the system against which this equipment was designed. Since Soviet TGM are assessed to have been developed from US technology, it is highly probable that they are susceptible to this type of countermeasure.

25X1

NOT RELEASABLE TO FOREIGN NATIONALS

WARNING NOTICE--INTELLIGENCE
SOURCES OR METHODS INVOLVED

This Page Intentionally Left Blank

NOT RELEASABLE TO FOREIGN NATIONALS

WARNING NOTICE--INTELLIGENCE
SOURCES OR METHODS INVOLVED

AST-2660Z-029-86
20 June 1986

PAPER COPY

DISTRIBUTION DIRECT TO RECIPIENT
(109 Copies)

A117 OASD RA&E
A125 OUSDRE
A157 OUSDRE (DTE)
B040 DIA/DIO
B068 DIA/DB-2D
B100 DIA/DB-1B
B150 DIA/DT
B737 DIA/RTS-2B (2)
C085 AMSAA
C461 INF CTR & SCH
C500 HQ TRADOC
ATDO-T
ATCD-ZS
C509 BRL
C512 CG AMC
AMCMI-F (5)
C517 Benet Weapons Lab
C523 LABCOM (3)
C539 TRASANA
C550 CECOM
C590 TACOM
C617 CAA
C619 MSIC
MICOM
C620 SRD
C635 AIR DEF AGENCY
C639 FA CTR & SCH
ATSF-F
ATSF-TC
ATSF-CD (2)
C646 CACDA, ATZL-CAT
CACDA, ATZL-CAM
C715 ARMOR CTR & SCH
C749 AIA-PD (45)
C763 HQDA DAMI-FIT
C768 AIAIT-HI
C769 AIAIT-W (10)
D008 NISC

DISTRIBUTION DIRECT TO RECIPIENT
(Continued)

E420 FTD
N005 US REDCOM
P002 NPIC/REG (2)
P055 CIA (OSWR) (2)
SOVA
P090 DIRNSA
A2-3
A4-1

BLACK BOOK DISTRIBUTION BY AIA

ACSI
CSA
VCSA
DAS OCSA
UNDERSEC ARMY
ASST SEC ARMY, RD&A
DCS RDA
DIR, WPNS SYSTEMS
DCSOPS
DIR, STRAT, P&P, ODCSOPS
ADCSOPS, NC
DIR, OPS & READINESS
ADCSOPS, FD
ASST SEC ARMY, MANPOWER & RESERVE
ASST SEC ARMY FIN MGT
SECRETARY OF THE ARMY
SSO/DA LIBRARY
DIR, PROGRAM ANALYSIS
OPERATIONS & PLANS DIV, DCSLOG
DIR, FOREIGN INTEL
ADCSLOG, SCTY ASST
ASST DEP UNDERSEC
ASST CofS, INFO MNGT
DIR OF ARMY BUDGET
COMPTROLLER
DEP UNDER SEC ARMY

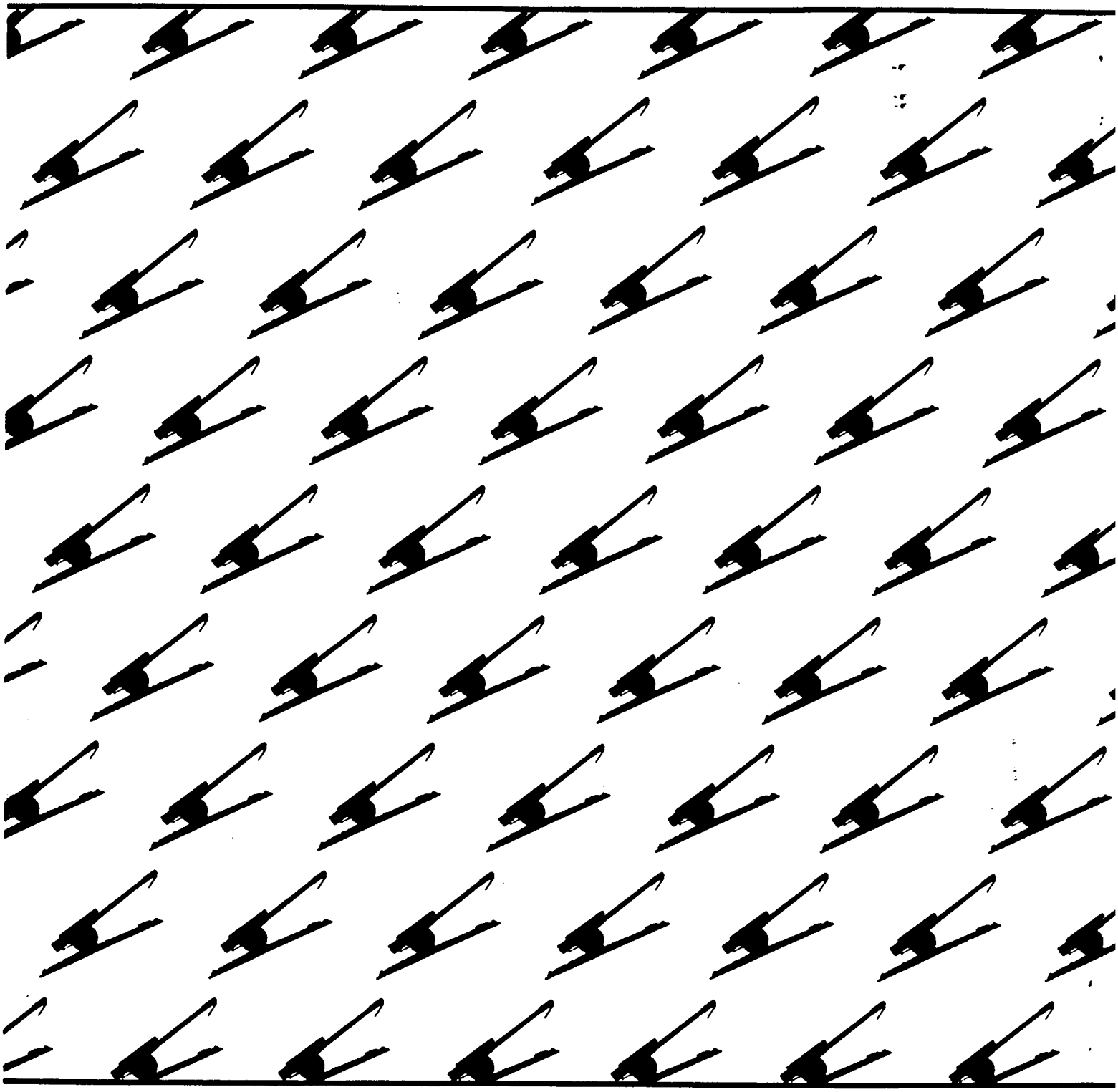
AST-2660Z-029-86
20 June 1986

DISTRIBUTION DIRECT TO RECIPIENT
(Continued)

FSTC INTERNAL DISTRIBUTION
(25 Copies)

AIAST-IM-IS3 (16)
AIAST-IM-IS1 (2)
AIAST-RA-ES2
AIAST-RA-ES3
AIAST-RA-ES4
AIAST-RA-CA1
AIAST-RA-ID3
AIAST-IO-CM
SLCHE-FI

TOTAL DISTRIBUTION: 134 Copies



NOT RELEASABLE TO FOREIGN NATIONALS

WARNING NOTICE--INTELLIGENCE SOURCES OR METHODS INVOLVED